I. *Observations made by Captain* Stannyan *of the Spots that appear'd upon the Body of the Sun in the Months of* May, June *and* July, *in the year* 1704. *Communicated by Mr* Hodgson, *F. R. S.*

May the 15th. ON *Saturday*, *May* the 15th, 1703, As I was observing the Setting of the Sun, in order to Examine my Clocks, there appeared two Suns, the Mock Sun seemed above the Real one, which was then only five degrees above the Horizon. Whereupon I took a good Seven foot Telescope, with a small Apperture, and soon discovered a Solar Spot near the Suns Center, which I designed to Observe more Exactly the day following, but it proved Cloudy.

May the 16th. *Sunday* no Sun shine.

May the 17th. *Monday*, *May* the 17th, At Six a Clock in the morning I took the same Telescope, armed with a Clouded Eyeglass, and immediately perceived that the Spot was advanced considerably towards the Suns Western Limb; it seem'd of a strong consistence, very Compact, resembling a Face, and was distant by Noon from the Anteriour Limb of the Sun's Diske 61 Seconds of time. See Fig. the 12th.

May the 18th. *Tuesday*, *May* the 18th, At noon I found the Spot distant from the Preceding Limb [illegible] Seconds of Time. Fig. the 12th.

May the 19th. *Wednesday*, *May* the 19th, At Noon I observed the Solar Spot to be moved within 33 Seconds of time of his Western Limb. Fig. the 12th.

Thurs-

Thurſday, *May* the 20th, At Noon the Spot was arrived within 21 Seconds of Time of the Preceding Limb, and moving nearly in a Straight line. Interſecting the Parallel of Declination paſſing through the Suns Center. Fig. the 12th. *May the 20th.*

Friday, *May* the 21ſt, We had no Sun-ſhine. *May the 21ſt.*

Saturday, *May* the 22d, At ſeven a Clock in the Morning I obſerved the Solar Spot was advanced very near the Limb of the Sun's Diske. Fig. the 12th. *May the 22d.*

Sunday, *May* the 23d, At ſix in the Morning I ſaw the Spot, which by that time was gotten to the very Edge of the Sun's Diske, Reſembling a Barley Corn, lean and ſlender, and of a Duskiſh Colour, wanting only its own ſhorteſt Diameter of the Suns Limb. At Eight a Clock I obſerved it again: Alſo at Ten, and at Twelve. At Two I perceived it was ſlid into the very Circumference, and hardly Viſible, had I not had an Eye upon it all the day long. At Four I examined the Sun's Body with my Eighteen Foot Glaſs, which is a good one, but could not perceive the leaſt Glimpſe of it; ſo that about Three in the Afternoon it totally diſappeared. Fig. the 12th. *May the 23d.*

Obſervations of the Solar Spots in *June*.

ON *Tueſday*, *June* the 3d, About ſix in the Evening I obſerved with my Eighteen Foot Glaſs four Spots in the Sun's Diske, environ'd with a Miſtineſs, thicker on the Right hand than on the Left, ſituated in the upper Left hand Quadrant, about the 12th part of the Sun's Diameter diſtant from his neareſt Limb. From the Cloud about them proceeded both ways five long curve Rays, of a yellower Colour than the Sun's Body. Theſe Spots I could never ſee more, though I watch'd them for ſeveral days together. Fig the 13th. *June the 3d.*

On

June *the 7th.* On *Monday*, *June* the 7th, 1703. At three a Clock in the afternoon I diſcovered the ſame Spot (to my thinking) that I ſaw go off the Sun's Diske on *May* the 23d. Re-entring the Sun's Face juſt at the time and place that I expected it.

At four of the Clock, the Sun being extremely Clear, I mounted my Eighteen Foot Telleſcope, through which the Spot appeared diſtinct, but ſlender like a Spider, with an Eliptical Speckly miſt about it, and 5 or 6 Light coloured Streaks. It ſeem'd to me to be as it were divided near the Top, as in the Figure. Fig. the 14th.

June *the 8th.* *Tueſday*, *June* the 8th. At ſix this Morning the Spot was very Viſible, and I ſaw it trace again its former Path, coming in exactly where I expected; it kept its ſhape, but thoſe Lemon Coloured Streaks diſappeared, tho it ſelf and the Miſt about it grew bolder and broader viſibly, as it re-entred the Sun's Diske.

June *the 9th.* *Wedneſday*, *June* the 9th. At five of the Clock this Evening I obſerved the Spot with the 18 foot Glaſs, but could not perceive it had altered its ſhape, but advanc'd gradually over the Sun's Diske, as it had formerly done.

June *the 10th.* *Thurſday*, *June* the 10th, At noon the Sun ſhining very bright, I had an opportunity of being aſſured it was the ſame Spot, I plainly ſaw it move over its former Path, and was then diſtant from its neareſt Limb 29 ſeconds of Time. At five in the Evening I obſerved its ſhape (with my 18 foot Tube) to be altered, appearing bigger and blacker than ever, as in the Scheme, Fig. 15.

June *the 11th.* *Friday*, *June* the 11th was an ill day for Obſervations. But I had a ſight on't with the 18 foot Glaſs; it continued black and bold, as before.

June *the 12th.* *Saturday*, *June* the 12th, At 7 a Clock in the Morning, the Sun's Body being very Clear, I ſaw the Spot through the 18 foot Glaſs, retaining its former ſhape.

Sun-

Sunday, *June* the 13th, By this day noon the Spot was arrived at the ſame point of the Sun's Diske that I found it in on *Monday* at Noon, *May* the 17th; which makes me inclinable to believe it was the very ſame Spot. *June the 13th.*

Monday, *June* the 14th, According to Rules received yeſterday from Mr *Flamſtead*, I meaſured the diſtance of the Spot from the next Limb of the Sun's Diske, which I found to be 45 ſeconds of Time from the Anteriour Edge of the Sun's Body: And upon *Tueſday*, *May* the eighteenth, it was obſerved to be in the very ſame place of its Path, within a ſingle ſecond of Time. At 4 I obſerved it with my 18 foot Glaſs, and perceived that it had altered its ſhape, appearing as at Number 14. I received it on the Scheme, and it was diſtant from the preceding Limb 612 ſuch parts as the Sun's Semidiameter is 900. *June the 14th.*

Tueſday, *June* the 15th, At Noon the Solar Spot was diſtant 32 ſeconds of Time from the leading Limb of the Sun's Disk, and covered the very place where the ſame Spot had been obſerved on *Wedneſday* the nineteenth of *May*. *June the 15th.*

Wedneſday, *June* the 16th, No Sun ſhine. *June the 16th.*

Thurſday, *June* the 17th, No Sun-ſhine. *June the 17th.*

Friday, *June* the 18th, At Noon I obſerved the Solar Spot waxing very ſlender, but notwithſtanding that it was black and bold to appearance, the Miſtineſs about it on the Right Hand perceivable, and that on the Left grown ſlender, in proportion with the Spot it ſelf, and found it diſtant 5 ſeconds of Time. *June the 18th.*

Saturday, *June* the 19th, At 5 this Morning, it being Clear Weather, I ſaw the Spot diſtinctly with my 7 foot Tube: At 9 a Clock I mounted my 18 foot Glaſs, obſerving once in half an hour all the Morning: At 12 I perceived that all the Cloud or Miſty Matter that uſed to ſurround the Spot was inviſible, and the Spot it ſelf re- *June the 19th.*

duced to little or no breadth, in compariſon to what it had been towards the Suns Center, and ſo cloſe to the Limb of the Diske, that I could only perceive a ſmall ſtreak of the Sun's Light between it and the Limb of the Sun's Body; at 2 a Clock I could juſt perceive it, but grown extremely ſlender.

The firſt Revolution I ſaw the Spot half in the Circumference of the Sun's Limb at 2 a Clock on *Sunday*, *May* the 23d: And the ſecond Revolution I juſt perceived it with the 18 foot Glaſs, at half an hour after two a Clock on *Saturday* the 19th day of *June*.

Obſervations of the Solar Spots ſeen in *June* and *July*, 1703.

June the 27th ON *Sunday*, *June* the 27th, about ſix a Clock in the Evening I obſerved ſeveral Spots in the Sun's Diske, but had not the Conveniency to uſe my longeſt Telleſcope, becauſe of ſome Trees that were in my way to Weſtward, ſo that I made no Obſervation till the *Tueſday* following.

June the 29th. *Tueſday*, *June* the 29th, About 7 in the Morning I counted 16 Remarkable Spots in the Sun's Body, and near his Center they appeared as in the Figure, through the 18 foot Glaſs; then I took my ſeven Foot Telleſcope and Frame, and obſerved that the foremoſt Center of ſix that looked on the Paper as one ſpot, was diſtant from the Sun's Anteriour Limb 81 ſeconds of Time, and the laſt Cluſter 87.

This day the foremoſt Spot was diſtant from the following Limb, according to the Path of the Spot, juſt 55 ſeconds of Time. The Sun's Diameter was always 136 ſeconds in the Tranſit, and the Spot was 126: So that that the Spots path was 10 ſeconds ſhorter than the Sun's Diameter.

Wednef-

Wednesday, *June* the 30th, At eight a Clock this Morning, obſerving the Solar Spots with my 18 foot Telleſcope, I perceived very plain that they had wonderfully increaſed in Number, and ſtrangely changed their places. The Cluſter of ſeven Spots ſeem'd to me to move gradually, as the ſingle Solar Spot did in *May*, but the Cluſter 4 went too faſt forward, the 12 Spots without a Miſt about them ſtraggled all manner of ways, and the 9 Spots and the 5 black little ones went backward, and unbent itſelf at the ſame time as it were into a ſtraight line. I am apt to believe it went backward, as that the other went too faſt, or faſter than ordinary forward, for in 24 hours the foremoſt Cluſter advanced 21 ſeconds of Time, which is more by ſix ſeconds than ever the ſingle Spot moved in that time, even when neareſt the Sun's Center; and the diſtance in time between the firſt and the laſt Cluſter this day was greater by 3 ſeconds than the day before. *June the 30th.*

The foremoſt Cluſter of 4 Spots was diſtant from the advancing Limb of the Sun 60 ſeconds of Time.

At half an hour paſt 4 the advancing Cluſter paſs'd the interſection in 55 ſeconds of Time, after the Sun's foremoſt Limb had paſſed Conformable to the Spots path; and the laſt Spot paſſed in 63 ſeconds of Time, the laſt Limb paſſing the interſection, according to the Path of the Spot, in 126 ſeconds of Time, the Sun's largeſt Diameter paſſing in 136 ſeconds, the Spots by this time appeared ſtrangely black, and of very odd ſhapes, as in the upper part of the Circle.

Thurſday, *July* the 1ſt, At eight a Clock in the Morning I obſerved the Solar Spots with my eighteen foot Teleſcope, the Weather being good, and ſaw that they had rang'd themſelves in Reſpect of one another, as is Repreſented in the upper part of the Scheme: The leading and largeſt Spot being diſtant from the anterior Limb 44 ſeconds of Time, the laſt Cluſter lying a little *July the 1ſt.*

awry, paſs'd in 53 ſeconds: After the Anteriour Limb ſo done, the following Limb alſo paſs'd the Interſection. according to the path of the Spot, in 125 ſeconds of Time.

Friday, } No Sun-ſhine.
Saturday, }

July *the* 4th. *Sunday*, *July* the 4th, This Morning at eight a Clock the Leading Spot was diſtant from the advancing Limb 10' ſeconds of Time, the Spots and Cluſters retaining nearly the ſame ſhape, but beginning to Contract themſelves, the foremoſt methought look'd ſtrong enough to make another Revolution, and paſs'd in 127 ſeconds.

July *the* 5th *Monday*, *July* the 5th, At ſeven a Clock I found the Spots had quite alter'd their ſhape, appearing dull and ſlender, as in the lower part of the Scheme,. and diſtant about four ſeconds, being all included in a Cloud.

July *the* 6th. *Tueſday*, *July* the 6th, At ten a Clock the Sun's Diske, view'd with my 18 foot Teleſcope, was found clear of all Spots.

On the ſeventeenth day of *July*, about four a Clock in the Afternoon I obſerv'd ſome Spots in the Sun's Body, reſembling thoſe I ſaw on *Thurſday* the third of *June*, only with this difference, that theſe appeared to me as if they had been heated red hot; they ſeem'd to be in the ſame part of the Sun's Diske. I obſerved them above an hour together that day, but could never afterwards ſet Eye on them, nor diſcover whether they were coming in, or going off his Viſible Diske. I continued to obſerve the Sun, as often as was poſſible, with my eighteen foot Glaſs, till the end of the Month, but without farther ſucceſs.

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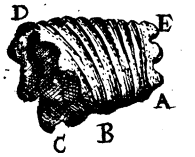

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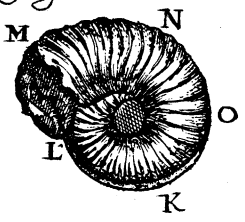

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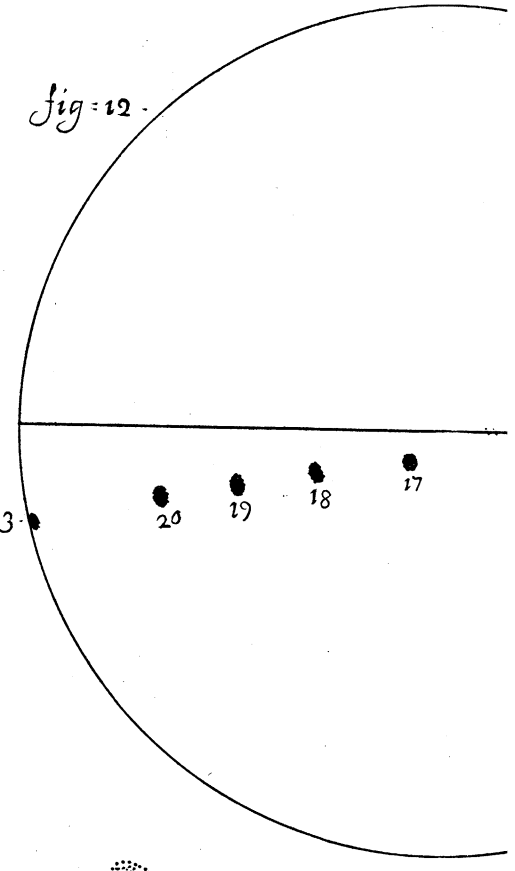

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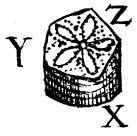

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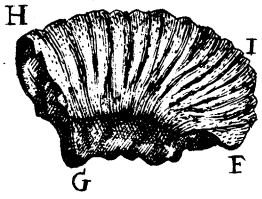

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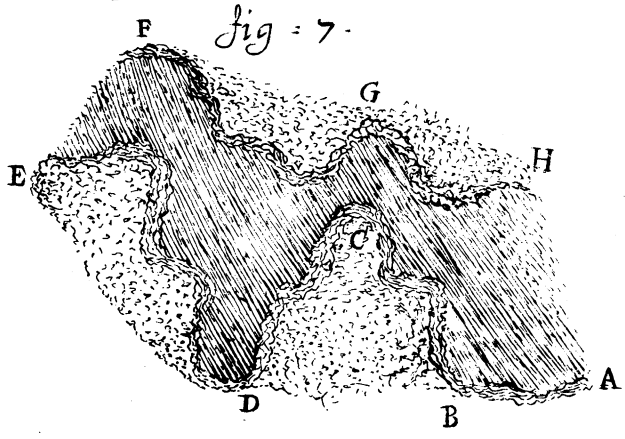

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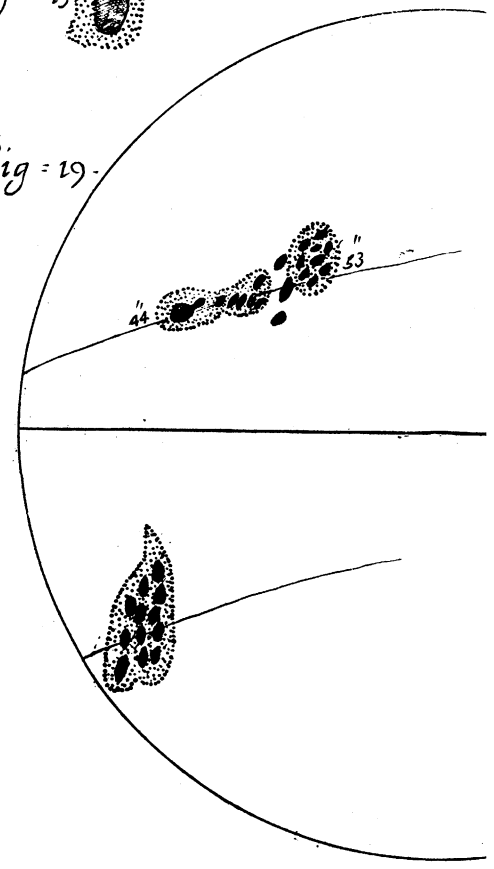

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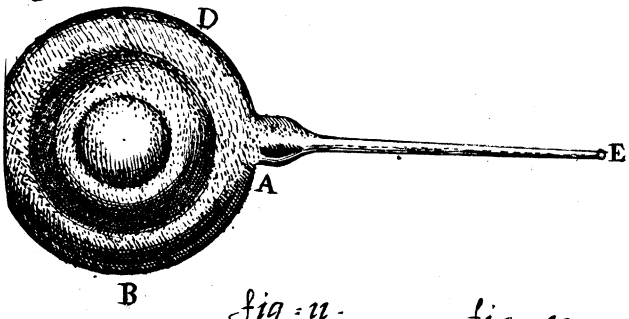

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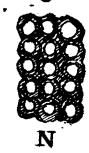

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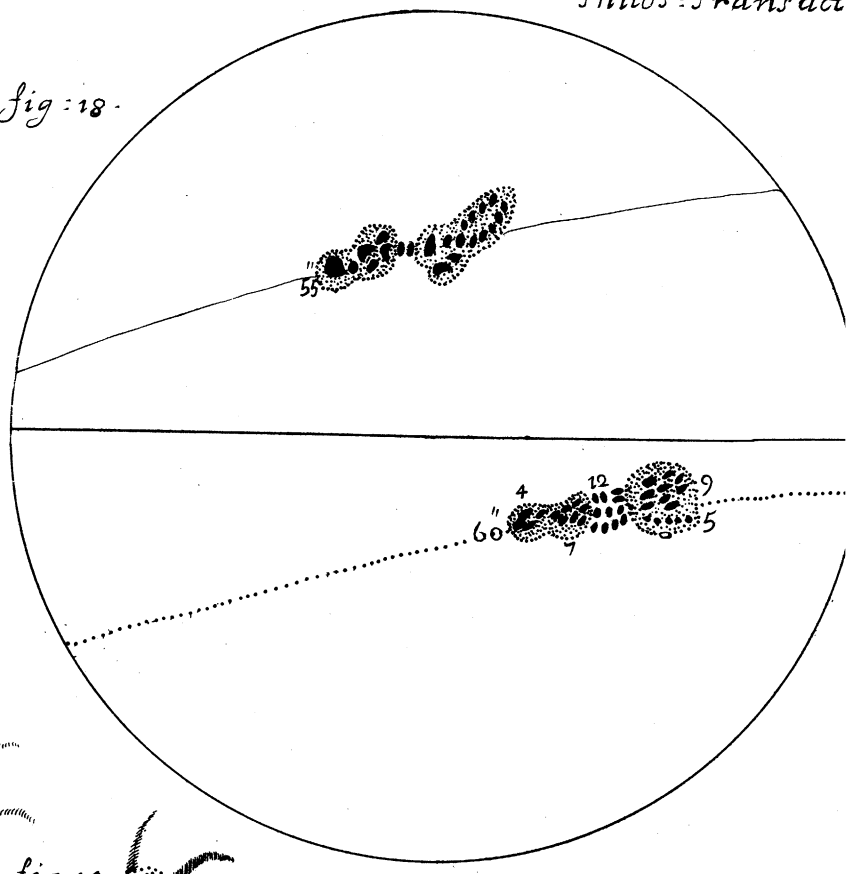

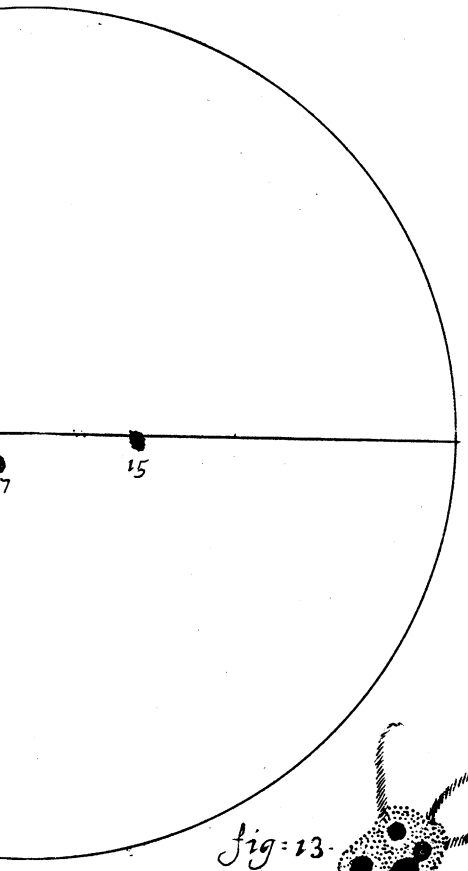

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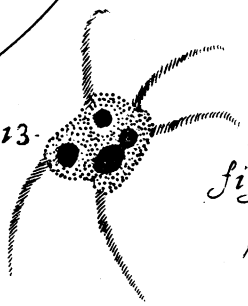

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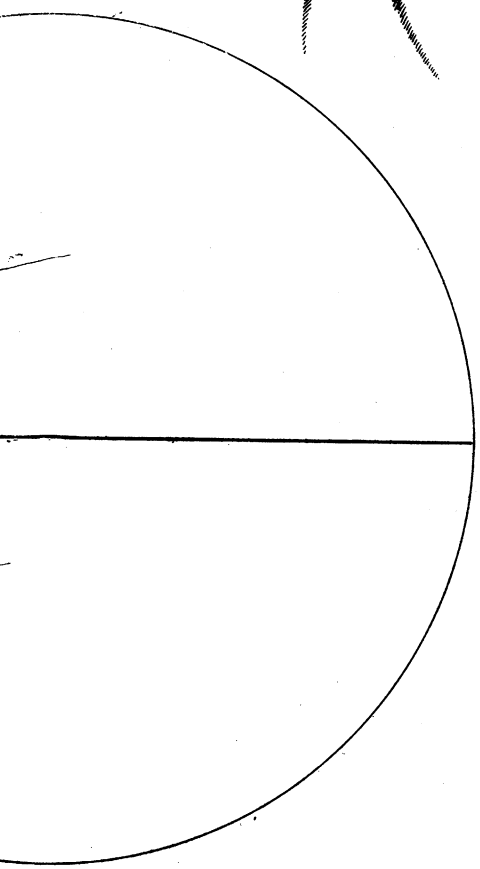

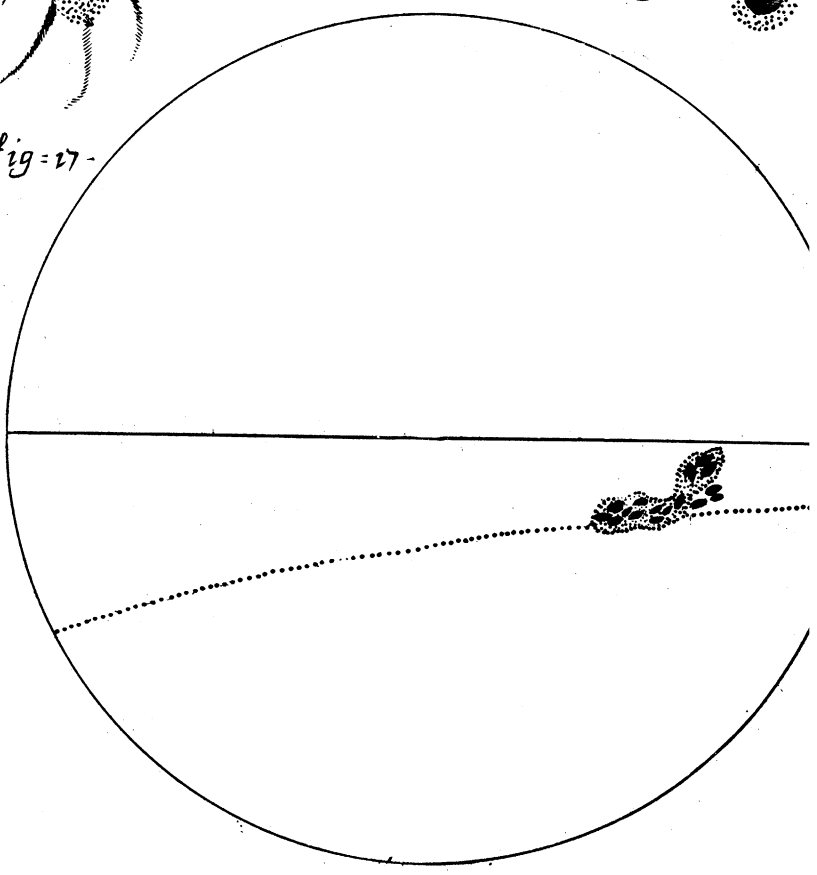

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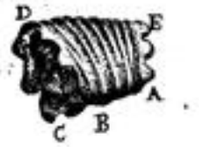

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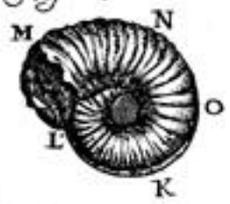

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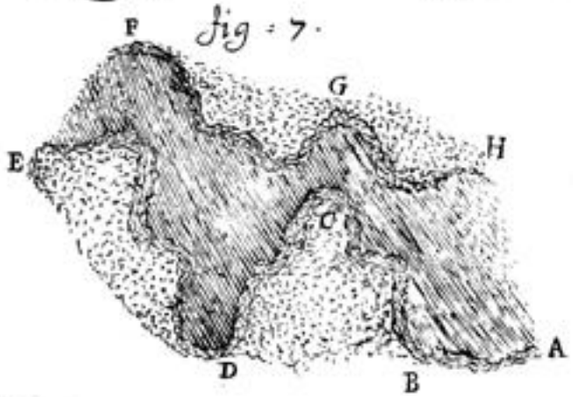

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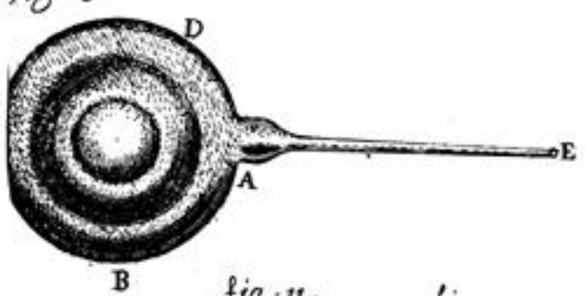

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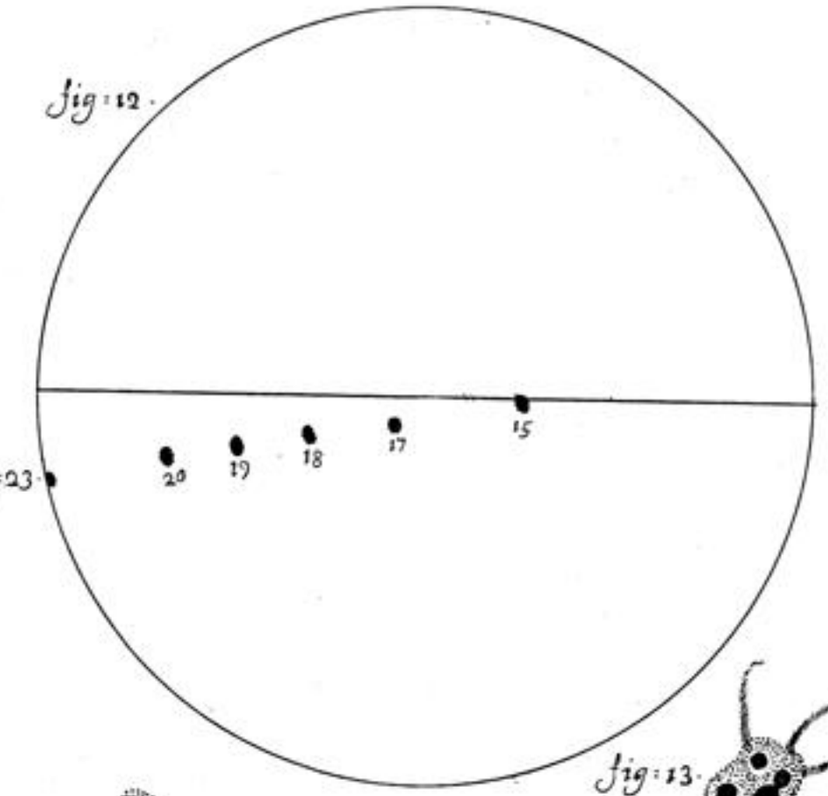

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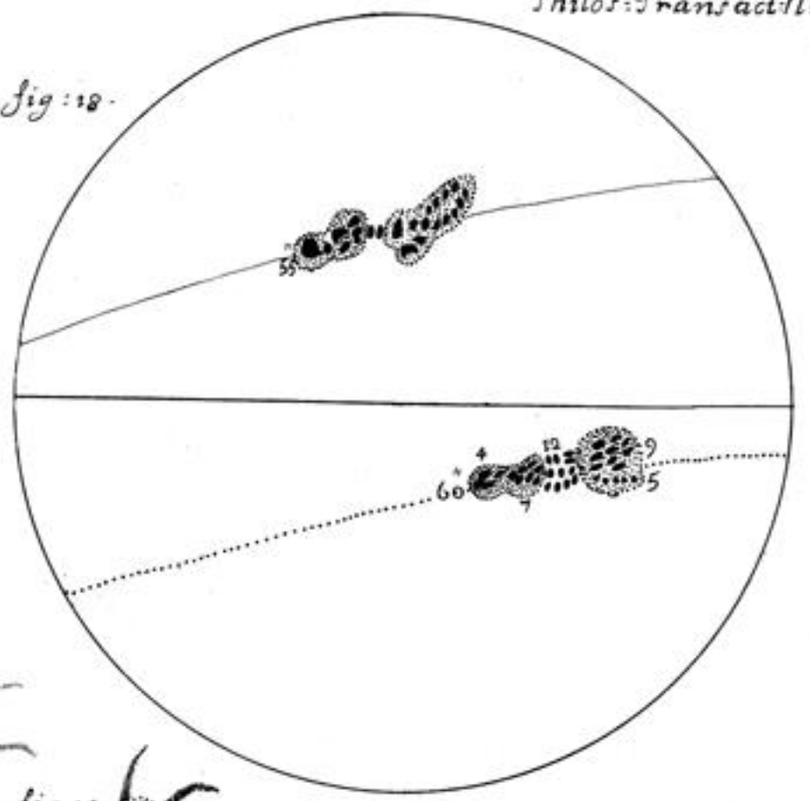

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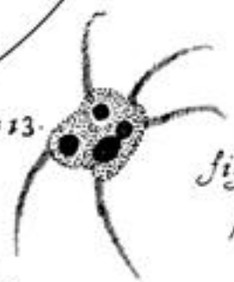

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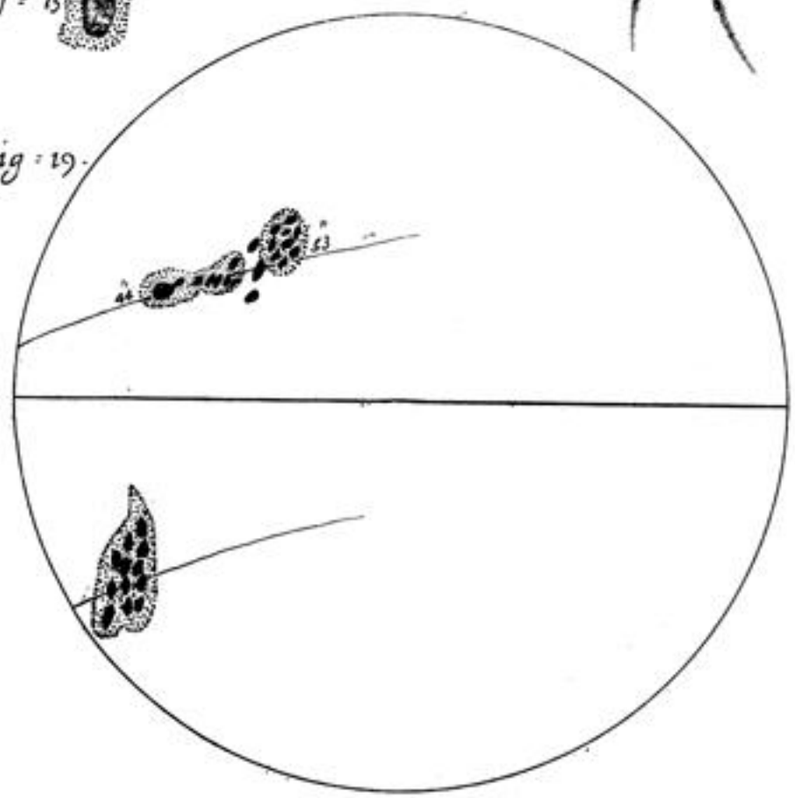

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